7. Colonoscopy and severe hematochezia

Dennis, A Jensen & Gustavo A. Machicado

Synopsis

Hematochezia is the passage of bright red blood or maroon colored blood, with or without clots, per rectum. Most often hematochezia is low grade and self limited and does not require hospitalization or urgent intervention. Such patients can be managed in an outpatient setting. A smaller group of patients experience severe hematochezia and require hospitalization because of the volume of blood loss or symptoms due to severe anaemia or comorbidity[1,2]. In addition, another group of severely ill patients will develop severe hematochezia while in the hospital for other medical or surgical conditions. These latter two groups require a systematic and expeditious approach to their resuscitation, preparation, diagnosis, and treatment. For more than a decade, our CURE-UCLA Hemostasis Group has recommended an aggressive diagnostic approach with preparation of the patient with oral purge followed by urgent colonoscopy for diagnosis and treatment. This approach is similar to that used for patients with severe UGI hemorrhage. This approach changes outcomes of patients, particularly for those with severe or persistent hematochezia[1,2]. This paper reviews:

- our approach to the patient with severe hematochezia
- the outcomes from this approach
- the details of colonoscopic treatment of several specific colonic lesions which frequently cause severe colonic bleeding.

Resuscitation and initial evaluation

Patients who present with evidence of severe volume depletion such as hypotension and tachycardia require adequate intravenous access and vigorous replacement of intravenous fluids and/or blood. Patients with coagulopathies [prolonged prothrombin time or international normalized ratio (INR) either from liver disease or anticoagulant therapy (Warfarin)] and ongoing hematochezia usually require administration of fresh frozen plasma. Those with severe thrombocytopenia or severe chronic renal failure may require platelet transfusions to help control ongoing hematochezia. Treatment of comorbidities and close monitoring in an intensive care unit or a telemetry unit by skilled nurses is highly recommended (Fig. 1).

History and physical examination

The patient should be evaluated with a careful history and physical examination. The history in particular may give the physician a clue as to the source of the bleeding. Elderly patients with heart disease who present with abdominal pain and hematochezia may have ischemic colitis. A history of cirrhosis might suggest varices, most often esophageal or gastric but rectal varices or anastomotic varices also can present as severe hematochezia. Severe heart disease (valvular in particular) or chronic renal insufficiency are associated with GI angiomias. A history of inflammatory bowel disease, peptic ulcer disease, diverticulosis, or internal hemorrhoids might indicate potential bleeding sites. A history of recent polypectomy, particularly of a large sessile polyp, should suggest delayed bleeding from a postpolypectomy ulcer. Abdominal pain, weight loss, fever, diarrhea, or vomiting are important in the differential diagnosis of inflammatory, infectious, or malignant lesions.
Medication history ▲▼

As part of medical history, it is also important to elicit and list all medicines, including over-the-counter drugs and herbal medications, which the patient has taken acutely or chronically. Some of these drugs may be associated with either causing gastrointestinal lesions or aggravating GI bleeding, by interfering with intrinsic coagulation parameters. Aspirin (in any dose, including 81 mg per day), nonsteroidal anti-inflammatory drugs (NSAID’s), anticoagulants, antibiotics, inflammatory bowel disease drugs, or antiarrhythmics may cause either GI lesions or gastrointestinal hemorrhage. Herbal medications such as gingko and ginseng may also be associated with hemorrhage from a pre-existing gut lesion.

Diagnostic evaluation ▲▼

Gastric lavage/aspiration ▲▼

When severe, ongoing hematochezia and severe blood loss are evident but there is no history or signs of frank hematemesis or coffee-ground emesis, a nasogastric (or orogastric) tube should be placed for diagnosis of a potential UGI source. Gastric lavage should be performed to help exclude the possibility of a UGI bleeding source. When bile is obtained in the presence of ongoing hematochezia, there is continuity with the duodenum and a UGI lesion is unlikely as the source of the hematochezia. When clear fluid lavage returns and no bile or blood is noted, continuity with the duodenum is not ascertained and the study is non-diagnostic. However, when blood, clots, or coffee grounds return from the lavage, a panendoscopy must be performed to exclude a UGI lesion as the cause of the GI hemorrhage and hematochezia (Fig. 1).

Bowel preparation ▲▼

In order to perform a complete colonoscopy in the presence of hematochezia, it is imperative that the colon be adequately cleansed. Cleansing the colon is the major rate-limiting step prior to urgent colonoscopy. After considering a UGI tract site of hemorrhage and after the NG aspiration, we administer polyethylene glycol purge (Golytely R or Colyte R) either orally or via an NG tube. Since some of these patients already have an NG tube in place to check for UGI bleeding, it is easier to leave it in place for the purge. A litre of solution is administered every 30–45 min until the rectal effluent clears of solid matter and clots. In our experience, six to eight litres of fluid over 3–6 h are usually needed to achieve this goal. Metoclopramide 10 mg IV may be administered 5–30 min prior to starting the purge for its prokinetic and antiemetic effects (Fig. 2).

Endoscopes and other equipment ▲▼

It is imperative to consider all the equipment that may be needed for the control of hemorrhage during emergency colonoscopy so that it is readily available for the endoscopist. A cart with all necessary equipment can then be taken to the bedside (such as in the ICU).
Colonoscopes

We prefer to use a colonoscope that is 13 mm or less in diameter, with a 3.8-mm suction channel and separate port for waterjet irrigation. The waterjet facilitates target irrigation and the large suction channel allows for simultaneous rapid clearing of the water, blood, and liquid stool. The addition of simethicon to the irrigation water is helpful in reducing the formation of bubbles which interfere with visualization particularly in the presence of blood. A small bowel enteroscope should be available in case colonoscopy (including examination of the terminal ileum) and anoscopy fail to reveal a bleeding site.

Hemostatic accessories

Epinephrine injection prior to coagulation is useful for postpolypectomy and diverticular bleeds but is not used for angiomas. A sclerotherapy catheter with retractable needle is needed for epinephrine injection or India ink labeling of lesions. A medium sized slotted anoscope is useful for diagnosis of bleeding internal hemorrhoids which can be controlled using a rubber band ligator. Small and large capacity forceps should be available for tissue biopsies. Standard and rotatable mini, medium, and large polypectomy snares are needed for polypectomies, submucosal resections, and cold guillotining (shaving down) adherent clots or lesions.

Tissue marking

Lesions such as Dieulafoy's, diverticula, or ulcerated small bowel tumors that may need repeat endoscopy for recurrent bleeding or that may require surgical resection are tattooed with India Ink or a sterile carbon-particle suspension after endoscopic treatment. The India ink injection facilitates localization on repeat endoscopy for rebleeding or finding the lesion at surgery (Fig. 3).

Coagulation probes

For bleeding angiomas, postpolypectomy ulcers, or colonic diverticula a bipolar probe is preferred for coagulation due to its limited depth of coagulation. The heater probe (Olympus Corp) and bipolar coagulation (Gold probe-Microvasive, Boston Scientific) have gained popularity with therapeutic endoscopists due to their efficacy, safety, easy portability, and low cost. The power units and catheters should be on the mobile endoscopy cart which is taken to the bedside. The CURE Hemostasis Research Group has studied the technical parameters related to endoscopic coagulation in laboratory [3,4] and clinical studies [1,2,5,6]. Figure 4 lists the various parameters recommended for the use of either coagulation probe for treatment of selected colonic lesions. For most actively bleeding lesions or those with adherent clots in the colon, except angiomas and internal hemorrhoids, combination epinephrine injection and thermal coagulation (with bipolar or heater probe) are used. Either small or large probes may be used depending upon the size of the lesion being treated. The probe is placed directly on the bleeding point with moderate pressure and low power settings and coagulation is applied until complete hemostasis is achieved. In contrast to coagulation of bleeding ulcers in the UG1 tract, only moderate pressure is utilized and a shorter pulse duration is sufficient to achieve good hemostasis in the colon.

Study results

Patients admitted for hematochezia

The CURE Hemostasis Research Group reported on 291 consecutive patients who were admitted to the
hospital because of significant hematochezia [2]. The patients included both those with persistent bleeding and those who stopped bleeding after hospitalization. The approach to the diagnosis in these patients was the same as with the group of persistently bleeding patients, i.e. resuscitation, placement of an NG tube to exclude a UGI bleeding site, colonic purge, and urgent colonoscopy. Upper endoscopy was performed in those patients who had evidence of a UGI bleeding site. Push enteroscopy was performed in patients who had a negative colonoscopy and negative NG aspirate. Urgent colonoscopy and the other examinations were performed within 6–12 hours of our GI consultation.

For the 291 patients, colonic bleeding sites were found in 77.7%. A UGI source of the hematochezia (e.g. ulcers, varices, or angiomas) was diagnosed in 14.8% of the patients. A small bowel source was present in 0.7%, and no source was found in 6.9%. Refer to Fig. 5. The most common colonic sources of bleeding were diverticulosis (29.6%), internal hemorrhoids (14.2%), and ischemic colitis (12.4%) (Fig. 6). Less common lesions included rectal ulcer, postpolypectomy ulcer, colon polyp or cancer, colon angiomomas, and ulcerative colitis. Identification of stigmata of hemorrhage and endoscopic treatment were possible in patients with focal lesions. Low risk patients without stigmata of hemorrhage and/or severe comorbidities could be triaged to a less intensive level of care as well as to earlier discharge. In a cost analysis, a comparison of the urgent colonoscopy approach with the traditional approach to hematochezia was previously reported from our group [2]. The urgent colonoscopy group had fewer hospital days, surgeries and diagnostic tests. The cost savings based upon 1990 estimates was a mean of $10 000 per patient.

Specific lesions ▲▼

**Diverticular hemorrhage ▲▼**

Diverticulosis is the most frequent colonic lesion responsible for severe hematochezia. Diverticular bleeding is due to the erosion of a small arteriole most commonly at the neck of the diverticulum or in the base. Therefore, diverticular bleeding is usually sudden and significant. Diverticular bleeding was the cause (including definitive diverticular or presumptive diverticular hemorrhage as defined below) of severe hematochezia in 29.6% of all patients admitted with severe hematochezia in our study. However, of all the patients with colonic diverticulosis who were admitted with severe hematochezia, 50% were found to have bleeding from nondiagnostic diverticular sources. ‘Presumptive diverticular bleeding’ was diagnosed when no source or other potential source of hemorrhage was found. ‘Definitive diverticular bleeding’ was diagnosed when there were stigmata of recent hemorrhage such as active bleeding (Fig. 7), a non-bleeding visible vessel (Fig. 8), or an adherent clot (Fig. 9) on a diverticulum at urgent colonoscopy. Identification of stigmata of hemorrhage on a diverticulum was possible only with adequate colonic cleansing and target water jet irrigation during urgent colonoscopy.

Comparing surgery with colonoscopic treatment ▲▼

In prospective studies of patients with definitive diverticular hemorrhage, we compared medical-surgical to medical-colonoscopic management [8]. Medical-surgical treatment was given to the initial 17 patients to define the natural history of definitive diverticular hemorrhage. These patients underwent emergency colonoscopy for diagnosis but did not receive any colonoscopic treatment. The second group of 15 patients with definitive diverticular hemorrhage received medical treatment and endoscopic hemostasis at the time the stigmata were diagnosed at urgent colonoscopy. Treatment consisted of epinephrine injection or bipolar cautery or both. The diverticulum treated was labeled with India ink injection to facilitate localization at repeat colonoscopy or surgery. Both groups were comparable in terms of age, comorbid conditions, recent aspirin and/or NSAID ingestion, and blood transfusion.
requirements prior to colonoscopy (Fig. 10).

Ongoing or recurrent hemorrhage requiring transfusion of 2 or more units of packed red blood cells was observed in 53% of the medical-surgical treated patients in contrast to 7% of the medical-colonoscopic treated group. Surgery for control of bleeding was required in 35% of the medical-surgical group and in 7% of the medical-colonoscopic group. No complications occurred in any of the patients who received colonoscopic treatment. The median time to discharge was longer (5 days) for the medical-surgical patients than for the medical-colonoscopic patients (2 days) (Fig. 11). None of the patients in either group had recurrent bleeding on long-term follow-up (mean 36 months). The long-term treatment recommended was fiber, control of constipation, and avoidance of aspirin, NSAIDs, and anticoagulants.

Internal hemorrhoids

Internal hemorrhoids were responsible for severe hematochezia in 14.2% of our patients who were admitted to the hospital. Most gastroenterologists do not include internal hemorrhoids in the differential diagnosis of severe hematochezia because the majority of internal hemorrhoidal bleeding is intermittent, low grade and self limited. However, some patients with hemorrhoids have sudden, severe bleeding. Bleeding internal hemorrhoids constitutes a significant public health problem as it is estimated that approximately 10.4 million people suffer from hemorrhoid symptoms annually prompting 3.5 million physician visits per year [9]. We grade internal hemorrhoids with a slotted anoscope on a scale from 1 to 4 (refer to Fig. 12), depending on the degree of prolapse through the anal sphincter. Although bleeding may occur from any grade hemorrhoid, severe bleeding causing anaemia and hospitalization is most often from grade 3 or 4 internal hemorrhoids. Following enemas to clear the distal colon (disposable enema or tap water), bleeding hemorrhoids can be diagnosed with a flexible sigmoidoscope but more often the hemorrhoids can be better visualized with the use of a medium sized, slotted anoscope.

Treatment of severe hemorrhoidal bleeding

While outpatients with bleeding from internal hemorrhoids often stop bleeding with medical therapy, in our experience [10] those with severe hematochezia require endoscopic therapy or surgery. In the past, we utilized sclerotherapy or anosopic coagulation (such as bipolar or heater probes) for patients with internal hemorrhoids and hematochezia [11,12]. Recently, rubber band ligation has been found to be faster and more efficient particularly for control of severe hematochezia [10] (Fig. 13). Concomitant medical therapy with fiber, stool softeners, and avoidance of aspirin, NSAIDs, and anticoagulants is also highly recommended. Outpatient follow-up and further treatment to completely control bleeding and to reduce the internal hemorrhoids to grade I or less should also be considered.

Surgical intervention is indicated for those patients who would prefer to have a single procedure despite discomfort and those patients who have failed medical and endoscopic therapy. Surgical hemorrhoidectomy is highly effective in controlling bleeding and eradicating internal hemorrhoids as well as external hemorrhoids [13–15]. However, surgical hemorrhoidectomy is not free of complications [16–18].

Ischemic colitis

Colonic ischemia was responsible for severe hematochezia in 12.4% of our patients hospitalized with hematochezia [2]. Other series report an incidence of 3–9% of severe lower gastrointestinal bleeding being caused by ischemic colitis [19–21]. There is usually no identifiable precipitating cause for the acute onset of colonic ischemia. However, most patients with ischemic colitis have underlying
Clinical presentation ▲▼

Patients usually present with the acute onset of crampy abdominal pain which can be localized in the right lower quadrant, epigastrium, or left lower quadrant depending on the segment of colon involved. However, the pain tends to radiate throughout the entire abdomen. The splenic flexure and sigmoid colon, which have poor collateral blood flow (watershed areas), are most often involved. When present, abdominal pain is usually associated with bloody diarrhea. Occasionally, nausea, vomiting, and fever are present. Signs of hypovolemia, tachycardia, and hypotension may be seen in severe cases of ischemic colitis. Physical examination of the abdomen may be normal or have findings such as diffuse abdominal tenderness and hyperactive bowel sounds. No localized peritoneal signs are usually present unless there is frank colonic infarction with involvement of the serosa. Thumbprinting may be observed on plain abdominal radiographs or barium enema but this is not a frequent finding. In many cases ischemic colitis in elderly patients, can present with only painless hematochezia and no other symptoms. The physical examination may reveal only mild tenderness or may be normal.

Diagnosing ischemic colitis ▲▼

Flexible sigmoidoscopy or colonoscopy is the best way to make the diagnosis [1,2]. There is usually segmental involvement consisting of mucosal edema, erythema, friability, mucosal hemorrhages, mucosal necrosis and ulcerations. Colonic biopsies from the affected as well as unaffected areas are usually definitive for ischemia. Colonoscopic and histopathologic findings are useful to differentiate colonic ischemia from inflammatory or infectious colitis.

Treatment for ischemic colitis ▲▼

Medical treatment is supportive with intravenous fluids and/or blood transfusions to improve tissue perfusion. Urgent treatment of comorbid conditions is warranted, including peripheral or central vascular disease, cardiac arrhythmias, or severe anaemia which may have contributed to bowel ischemia. Antibiotics are indicated if fever or sepsis is present. If there is clinical deterioration of the patient with development of peritoneal signs, fever, leukocytosis, or evidence of bowel perforation, surgical intervention with segmental colon resection is indicated. Therapeutic colonoscopy plays no role in these patients unless a focal ulcer with stigmata of hemorrhage is found at colonoscopy which usually is not the case [22,23].

Solitary rectal ulcer syndrome ▲▼

Solitary rectal ulcers were responsible for 9.3% of the total cases of patients presenting with severe hematochezia, making it the fourth most common diagnosis in this large study [2]. In contrast to previous series which reported that this syndrome occurs in younger (third and fourth decades of life) patients [24,25], our patients were older in the sixth and seventh decades of life [23]. This syndrome is more common in women and is characterized by rectal bleeding and mucous discharge in 56–89% of patients [25,26]. These patients usually present with symptoms of severe constipation and often fecal impaction. The etiology of this disorder is not completely understood, but prolapse-induced rectal mucosal trauma or ischemia appear to contribute [27]. Pressure induced mucosal necrosis in elderly patients with fecal impaction must also be considered. On endoscopy, one or more well demarcated ulcerations are seen with edematous, erythematous, and nodular borders [28]. Active bleeding or stigmata of recent hemorrhage were found at urgent colonoscopy in most patients with severe hematochezia in our recent study [2,23,28].
Colonoscopic therapy

Colonoscopic therapy consists of coagulation with a large contact thermal probe with or without preinjection of epinephrine. For actively bleeding ulcers or ulcers with an overlying clot, injection of 1:10 000 epinephrine is recommended circumferentially around the bleeding point or pedicle of the clot in four quadrants prior to coagulation. After epinephrine injection, in actively bleeding ulcers, irrigation is used to expose the bleeding vessel and then subsequently coagulate the bleeding point to completely flatten the vessel. For those ulcers with an overlying clot, following epinephrine injection, the clot is removed by cutting it off with a cold polypectomy snare thereby exposing the vessel. Subsequently, the vessel is cauterized as before until completely flattened. Rectal ulcers with a non-bleeding visible vessel can be coagulated without prior injection of epinephrine. The large thermal probe is placed directly on the visible vessel and it is cauterized until flattened. Recommended power settings for the bipolar probe are 12–16 watts for 5–10 second pulses or for the heater probe, 10–15 J.

Postpolypectomy hemorrhage (delayed)

Hemorrhage after an endoscopic polypectomy may occur immediately afterwards or may be delayed for hours, days, or rarely weeks. In this section, we will focus on delayed severe postpolypectomy hemorrhage resulting in hospitalization for severe hematochezia. This is defined as occurring one or more days after discharge of the patient from the endoscopy unit after the polypectomy.

Incidence of postpolypectomy hemorrhage

The incidence of delayed postpolypectomy hemorrhage is reported at 1–6% [19,30]. The variation in these reported rates is most likely a function of study design, patient population (i.e. age, comorbid conditions, use of antiplatelet drugs or anticoagulants), and configuration and size of polyps. Because of changes in colonoscopy practices in the last decade including the resection of larger sessile colonic polyps, piecemeal resection, and following submucosal saline injection, delayed postpolypectomy hemorrhage appears to be occurring more frequently. Severe postpolypectomy bleeding was the cause of severe hematochezia in 8.0% of patients in a recent study [2]. The mean size of the polyps was 20 mm in diameter, and most were sessile polyps without carcinoma on histopathology. Delayed hemorrhage occurred a median of 9 days (range 2–73) after polypectomy. Most patients (77%) were men with a mean age of 69 years. The majority (77%) were also consuming aspirin or warfarin after polypectomy for comorbid cardiac or vascular conditions. All patients required hospitalization because of severe hematochezia.

Colonoscopy findings

After colonic purge, urgent colonoscopy revealed ulcerations with a mean diameter of 11 mm. Stigmata of hemorrhage on the ulcers included active bleeding in 23%, non-bleeding visible vessel in 23%, clot in 38%, spot (a single small red flat lesion) in 8%, and clean ulcer in 8%. Ninety-two percent of patients were treated endoscopically, and only one patient re-bled. One patient with cancer had surgery, and the remainder were treated medically.

Bleeding occurring immediately following polypectomy is thought to be due to inadequate cauterization of the polyp vessels during polypectomy whereas delayed postpolypectomy hemorrhage is thought to be due to sloughing of the necrotic, cauterized tissue in the induced ulcer, with erosion into underlying blood vessels. The predominance of visible vessels with or without active bleeding or clots indicates an underlying vessel, probably similar to the anatomy of peptic ulcers as defined by Swain [31]. However, to date there have been no studies reporting on the histology of stigmata of hemorrhage
for delayed postpolypectomy ulcers.

**Treatment for postpolypectomy hemorrhage ▲▼**

There are several effective methods to control bleeding from a postpolypectomy ulcer. We use techniques similar to chronic peptic ulcers to treat major stigmata of hemorrhage. In a post polypectomy ulcer with active bleeding, epinephrine (1 : 10,000) is injected to slow or control the hemorrhage and then thermal coagulation is applied with the bipolar probe or heater probe on the bleeding vessel. For an adherent clot on the ulcer, we inject epinephrine around the pedicle of the clot in the ulcer base and then shave down the clot using a cold polypectomy snare. Rotatable snares facilitate this type of clot removal. Once the visible vessel is exposed, it can be coagulated with a thermal probe. Refer to Fig. 14 as an example. With a bipolar probe, we use a low power setting of 12–16 watts with 2–4 second pulses. For heater probe, power settings of 10–15 J/pulse are utilized. For a non-bleeding visible vessel, thermal coagulation alone is utilized. We also label the segment of the colon with India ink.

**Colonic angiomas ▲▼**

Colonic angiomas were responsible for severe bleeding in 5.7% of our patients admitted to the hospital for severe hematochezia. In contrast, the majority of patients we have seen (70%) with bleeding angiomas presented with self-limited intermittent bleeding or occult blood positive stools and iron deficiency anaemia. These patients are usually hemodynamically stable and can undergo elective colonoscopy in the outpatient setting [32]. A smaller group (30%) of patients with colonic angiomas present with severe, persistent hemorrhage, may be hemodynamically unstable and/or severely anaemic, and require hospitalization, blood transfusions, and emergency evaluation.

**Bicap or heater probe study in treatment of bleeding angiomas ▲▼**

The CURE Hemostasis Research Group randomized 108 prospective patients with bleeding colonic angiomas to colonoscopic treatment with bipolar coagulation (57 patients) or heater probe (51 patients). Most of these patients were elderly (>65 years) and suffered from one or more comorbid conditions (Fig. 15). The mean follow-up of these patients was 2 years which was compared to the 2 years prior to endoscopic treatment in terms of number of bleeding episodes, number of blood transfusions, and hematocrit while on iron and not acutely bleeding.

**Findings at colonoscopy ▲▼**

At colonoscopy most angiomas (85%) were in the right colon. The majority of angiomas (80%) were 5–10 mm in size, 18% were 11–20 mm, and 2% were greater than 20 mm (Fig. 16). The mean number of colonoscopies to control bleeding during the follow up period was 1.4 with a range of 1–4.

**Techniques for hemostasis ▲▼**

The techniques of the CURE Hemostasis Group for coagulating angiomas in the colon include using a small probe (2.4 mm diameter) for angiomas under 5 mm or the large probe (3.2 mm) for angiomas larger than 5 mm. Avoid overdistention of the colon during colonoscopic coagulation. Light pressure is applied with the probe directly on the angioma. For bipolar coagulation, we use a 50 watt generator and coagulate with a setting of 10–16 watts and 1 or 2 second pulses. For heater probe coagulation, we use a setting of 10–15 J. Whitening of the entire angioma is the desired endpoint of treatment (Fig. 17). All angiomas that are visualized during the course of the examination are coagulated. However, we caution
against coagulation of large colonic angiomas in patients who have never had severe GI hemorrhage (such as hematochezia), because of the potential of complications.

Results

Seventy percent of patients had a good outcome with colonic coagulation, experiencing fewer bleeding episodes, requiring fewer blood transfusions, and holding a higher hematocrit during follow-up (Fig. 18). Partial colectomies were performed in 18% of patients who had multiple colon angiomas (usually more than 25 in one segment such as the right colon). However, 38% of these operated patients continued to have recurrent bleeding post-hemicolectomy. Complications from colonoscopic coagulation were observed in 5% of patients consisting of delayed hemorrhage due to ulceration (4 patients) or post–coagulation syndrome due to full thickness coagulation (2 patients). No perforations occurred. Two of the patients with delayed hemorrhage who had coagulopathies required surgery.

Conclusion

Severe lower gastrointestinal bleeding is now a more frequently encountered medical-surgical problem. The prevalence appears to be increasing because of recent colorectal cancer screening practices and the aging of referral patient populations. Our recommended approach to these patients is for vigorous resuscitation with intravenous fluids and blood transfusions, close monitoring in an intensive care unit or monitored bed unit, bedside evaluation with nasogastric tube lavage for a possible UGI bleeding source, and urgent colonoscopy (or upper endoscopy or small bowel enteroscopy if colonoscopy is negative) following through colonic cleansing with oral or nasogastric tube purge. Definitive diagnosis of the bleeding site can be made with this approach in over 93% of cases. In patients with severe hematochezia, a colonic bleeding site is found in 75% of cases. Endoscopic treatment of focal bleeding lesions in the colon is highly effective and safe, diminishing the need for surgical intervention. In patients who recently bled, and have no stigmata of hemorrhage or low-risk stigmata, early diagnosis may facilitate downgrading the intensity of medical care and early discharge.

Acknowledgements

The research with the results presented was partially supported by grants-NIH 1K24 DK02650 and the Human Studies CORE of NIH 41301. The authors thank Ken Hirabayashi for creating figures and Julie Pham for the word processing. We are indebted to the other members of the CURE Hemostasis Research Group (Drs T.O.G. Kovacs, I.M. Gralnek, G. Dulai, and R. Jutabha) for their willingness to continue to perform urgent colonoscopies for severe hematochezia, after all these years.

References


Copyright © Blackwell Publishing, 2004